

triumph, as if in defiance of the world which he had conquered, must now come to supplicate the bounty of an English gentleman, in order that it may be preserved from decay."

Burgh Castle is considered by many, as most people know, the *Garionnum* of the Romans, and, like Richborough Castle, Caister, and others, consists of walls and abutment towers, constructed of flints bonded at certain intervals (of about three feet) by layers of tiles. The facing, which was regular, has disappeared: the mortar has pounded brick mixed with it, a sure sign of Roman workmanship. Ives, in his "Remarks upon the Garionnum," published in 1803, says that the bed of chalk and lime, beat down, on which the walls were raised, was covered with oak planks two inches thick, and a layer of coarse mortar (concrete) to receive the stones of the fabric.

The Rev. C. Hartshorne, in some, too hasty, remarks on the structure, which he gave mounted on its ruins, phoo-phoo'd this statement, blowing the planks to the wind. Mr. Godwin ventured to protest against a contradiction founded on a very slight acquaintance with the locality, lest error should be substituted for truth; and urged that further excavations should be made: afterward, the impress of, at all events, two planks was found on an inverted mass of the foundation.—But the steamers are ready,—and so, after a hasty glance at the parish church, which has a round tower, apparently of the Norman period, and has been recently restored and fitted up with open seats, we go again on board, and land in good time at

YARMOUTH,

where the Church of St. Nicholas was the chief object of attention. Here Professor Willis had an audience around him to hear his account of the church; but as we did not reach the spot until the lecturer had nearly finished his discourse, we avail ourselves of a report of it, which appeared in one of the Norwich newspapers. Mr. Willis said;

"St. Nicholas afforded a very curious example of the many changes which were made in parish churches from time to time. It might easily be supposed that when the population was small and their means limited, they built a small church, and the contrivances they adopted to enlarge it when necessary was a subject of much interest. Yarmouth Church was an example of a very curious practice. They would observe, when they entered the church, that it consisted of three aisles, which was common, but they would observe, the centre was narrower than the side aisles. If they examined a little more closely, they would find the style of architecture of the central aisle was earlier than that of the side aisles. The result of investigation showed that originally there was a wide central and two side aisles. If they looked in the north aisle they would see that the upper part of the walls had originally been exposed to the air, and the original slope was in contact with the wall upon the arches, a low wall in the ancient fashion with small narrow windows, making a smaller and a darker church. There was no doubt that this church was begun to be enlarged by taking down the low wall with its sloping roof, and erecting another wall on the south, probably before they took the old one down. One object being to prevent, as much as possible, any interruption of the public services, they began outside, and as funds were not easily obtained, it might be a very long work; they had a long time to collect the money: they proceeded quietly till they had nearly completed, and then they took down the inner wall, put on the roof, and by that means obtained increased accommodation. These opinions were the result of examination, not only of the structure of this but of many other churches, and he was satisfied that this mode of enlarging churches was very common. The south side aisle having been completed, the north one was com-

menced, which is of a later date. This roof was very different from the low sloping one he had already described. The walls were of equal height, and the roof of the side aisle nearly equal to the centre. In the churches of the middle ages the side aisles being low, to allow a sloping roof, the windows were very low, and the church derived light from what were called clerestory lights. This church was one of a different and a better structure. When those aisles were erected in the way already described, the tracery they then saw was not known. That dated between 1370 and 1380. The window jambs, shafts, with arch mouldings, belonged to an earlier period. The three gables of the church were all of the early English style, the middle one was the oldest, the south second, and then the north still later. Those alterations all took place in about fifty years. Almost the only historical fact they knew of the church was, that it was commenced by Herbert de Losinga, about 1096, but in his opinion no part of that was remaining, but must have been taken down when the church was increased. The sudden and rapid enlargement of the church showed that they must first have had a small Norman church with small side aisles, and that then the south and afterwards the north aisles were enlarged. There was, too, another change that he would point out, which was that the church had a great tower and transepts, and there was another enormous chancel, having a middle and side aisles."

The professor afterwards alluded to the diary of William of Worcester, a writer in the time of Henry V., preserved in Corpus College, Cambridge. It was made up of backs of old letters and documents, which he appeared to have kept in his pocket. These scraps Archbishop Parker collected and bound, by which means they had been preserved. William of Worcester was private secretary to Fastolf. It appeared that he visited Yarmouth Church, and wrote down many particulars, relating to its measurement, &c. He says, that "the Great Church of St. Nicholas was increased in 1250, and dedicated in 1251," which applied very well to some of the arches. He further said there was new work begun in the west part in 1320.

Very considerable works are now in progress here under Mr. Hakewill. The end of the north chancel is being rebuilt, the masonry having come over 18 inches; galleries have been taken down, divisions are to be removed, and many other things done. The size of this church is very great, namely, 260 feet long and about 180 feet wide in the clear: the length of the transepts is 150 feet.

We can only say two words about Mr. C. J. Palmer's very interesting house, built at the end of the sixteenth century,* and of Mr. Dawson Turner's wonderful collection of autographs, and of archaeological and architectural drawings by his accomplished daughters, and then away from Yarmouth.

Ely is at some distance from it, and was visited, as a matter of course, on another day; we fly over space, however, and place before our readers a view of the east end of the cathedral there,—one of the finest remaining specimens of an Early English front.†

FAIRBAIRN'S IMPROVED IRON BEAMS.—A patent has been taken out by Mr. Fairbairn, of Manchester, for the construction of hollow wrought-iron beams. The method adopted, according to the *Mining Journal*, is to form the beam of stout plate-iron, rivetted at the joints to strong T iron, and at the angles to L iron, to give additional strength, and prevent huckling and deflection as much as possible. A transverse section represents three chambers, the two square ones at top being together rather wider than the upright one, and all bolted together in the most substantial manner. In his specification for these hollow beams, he describes them under different constructions, suitable for mills, factories, warehouses, dwelling-houses, bridges, &c.

* Mr. Palmer, who is a sensible antiquary, is about to publish "A Book of the Foundation and Antiquities of the Town of Great Yarmouth: &c." in the original MS. written in the time of Queen Elizabeth." See p. 208.

THE STATE OF EDUCATION AND PRACTICE, AS INFLUENCING THE PROFESSION OF THE ARCHITECT.

In assigning a large amount of influence over the profession of architecture to deficiencies in the necessary apparatus of practice, and to defects in the early education of architects,* we believe we have noticed two of the most important facts in its actual position. Education must be defective so long as the constituent parts of architecture remain to be enumerated, and so long as the objects and nature of the profession are unexplained,—so long, in short, as there is no course whatever, prescribed as a preparation for the profession and the future life. The practice of architecture must be, as it now is, a matter of toll and drudgery, to an extent inconsistent with the pursuit as art, inconsistent with that constant mental replenishing without which no great efforts of genius can germinate, so long as what should be matters of reference require a constantly recurring outlay of time in calculation or inquiry, or oppress the memory to the exclusion of really valuable matter.

The system of the universe, the great business of life, are all expressed in one word,—order. Architecture, under all its aspects, has not less the need of this universal power of direction and government. Vitruvius recognised its value in the mere art. But it is something more than an element of beauty; and considered thus extensively, there is no profession in which it can be more requisite than in that of the architect, where so many qualifications of an apparently opposite nature are demanded, that, if attained to the extent which seems necessary to constitute the professor, health of body and mind must be taxed to the utmost power of natural endurance. In furtherance of this government of order, therefore, as well as to permit the devotion of the powers of the mind to the most remunerative objects, it is essential to employ all the aids which ingenuity can invent, or which industry can amass for preservation. Thus all manuals, and collections of data, for reference in every department of science and practice, everything in the nature of indices to facts and precedents, whether printed in the form of tables, or by means of collections of specimens, should be provided, as they are in all other pursuits, and as it is especially important that they should be in the profession of architecture. How much labour in calculation is constantly saved by the use of tables of logarithms, and by those of square and cube roots? The price books (before referred to) are the only instances we can name, of similar aids in what is peculiarly architectural, yet there might be many of equal utility. By accident, there is an encyclopædia of the Metropolitan Buildings Act, or else this matter would have afforded a fitting illustration of the immense tax upon the time of the architect, in mere matters of business, and of the care which had been taken in remedying it.

We by no means wish to urge, in advocating the compilation of tables and data for reference in all departments of the practice of architecture, that such aids should supply the want of that elementary course on which we have insisted. No doubt, tables of scantlings, such as those published by Tredgold, may often prove of great service, but they were never intended to render less necessary the study of the rules by which they were calculated, and least of all are they to be used by those who do not comprehend their principles. This is not the description of aid which we more particularly refer to, but rather the want of compilations of data, to prevent the useless repetition of labour, that there are no rules of professional practice for the conduct of works, and for regulating the business intercourse between contractor and architect, no authorized scale of charges, not even a well-comprehended principle of professional etiquette, no *code merum*, or catalogue of requisites in a building, to which reference can be made in drawing up specifications, in order to prevent the possibility of omission,—indeed nothing which can bear a comparison with the extent of the need. We have elaborate works on all styles, works on masonry, on carpentry, and other departments of architecture and building, in which principles and rules are accurately investigated, but we have nothing of the nature of text books or manuals. We should be glad to see

* Vide pages 345 and 347, ante.